FINANCIAL INTEGRATION, INCLUSION, AND STABILITY DURING CRISES: INSIGHTS FROM THE MIDDLE EAST AND NORTH AFRICA REGION

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SUSTAINABLE DEVELOPMENT GOALS AND EXTERNAL SHOCKS IN THE MENA REGION:

FROM RESILIENCE TO CHANGE IN THE WAKE OF COVID-19

Financial Integration, Inclusion, and Stability during Crises: Insights from the Middle East and North Africa (MENA) Region

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Abstract

The main objective of this paper is to analyze the interrelationships between financial integration, inclusion, and stability in the MENA region and the role of crises in these linkages. This is the first study that tries to examine the interrelations among these variables in MENA's financial markets. To achieve its objective, the article starts by assessing regional integration among MENA stock markets using correlational analysis and the DCC GARCH models. Then, it builds a PVAR model to examine the relationships between integration, inclusion, and stability in MENA. Results show that regional integration is still limited in MENA, despite of growing linkages with other international markets. Regional integration in MENA is more pronounced among countries that lie within closer geographical proximities. Moreover, crises, whether being financial or political, also tend to increase regional correlations and linkages among MENA markets, although the impact of financial crises is higher compared to political instabilities. Analysis highlighted the positive short term impacts of regional integration on inclusion in the MENA region; however, these impacts could not be maintained for longer time periods. In contrast, international integration had negative effects on inclusion and stability that diminish over time. No linkages were found between financial inclusion and stability in the MENA region.

Keywords: financial integration, financial inclusion, financial stability, financial contagion, spillover, GARCH, Dynamic Correlation Coefficients (DCC), Panel VAR (PVAR), MENA

JEL Classifications: C23, C58, F3, G01, G15, O16

Introduction

Financial markets are considered to play a key role in the economic growth and development of nations. They provide the main transit between saving and investment and an essential channel for raising funds that should be allocated to profitable business opportunities. However, it has been argued that finance has not benefited the developing economies as expected and the link between financial development and economic growth, poverty reduction, and income inequality has not been clear or empirically robust. Additionally, the increasing trends of liberalization and openness of financial markets did not lead to increased levels of financial inclusion or stability. Moreover, the development of world financial markets and the rising tide of globalization have led to increasing financial integration. On one hand, the introduction of integration and liberalization leads to increasing the number of investors and available funds for lending, which means more competition, lower transaction costs, lower risks, and decreasing cost of capital or equity. On the other hand, financial integration increases contagion effects during crises among markets. However, a regional financial integration, which involves the reduction or elimination of barriers to capital flows among countries that share the same geographical region, benefits the developing countries by mitigating the negative impacts of the volatile international capital flows. This might be particularly important during crises.

Few studies have discussed financial markets in the Arab World and the Middle East. Despite of its recently increasing liberalization and openness, financial markets in the Middle East and North Africa (MENA) remain underdeveloped, they are also vulnerable to different types of internal and external shocks and instabilities, financial and non-financial, and the region also suffers from one of the lowest levels of financial inclusion in the World. These issues raise questions about the role of financial openness in developing MENA's financial sector and the interrelationships between financial integration and other important objectives that should be pursued by any efficient financial system including stability and inclusion.

Therefore, the aim of the research is to study the relationship between financial integration, inclusion, and stability within the MENA region. The study also addresses periods of crises, financial and non-financial, and analyzes the period that follows recent Arab Uprisings. This is the first study that examines the interrelations among these variables in MENA's financial markets. It is also worth noting that the current literature lacks studies that try to establish a conceptual framework that depicts these links and helps understand the complex relationships among these financial phenomena (García 2016). Thus, the paper would help understand the benefits and costs of financial integration within the MENA region. It would also highlight the potential impact of integration on increasing or decreasing financial inclusion in a region that suffers from the lowest inclusion measures globally. Furthermore, the study will explore the role of inclusion, if any, in

promoting financial stability in the MENA region. Finally, it is important to understand the workings of financial markets and the transfer of crises within the region to design policies that might mitigate these negative repercussions. Accordingly, the study attempts to answer the following questions: Are financial markets in MENA regionally integrated? How do crises affect integration in the region? How are financial integration, inclusion, and stability linked together in MENA countries? And what is the role of other important factors including financial development, governance, and crises in these interlinkages?

Besides its introduction, the paper is divided into four sections. First, the study begins with an overview of the literature on the concepts of financial integration, inclusion, and stability and their interrelationships. Then, the study moves on to describe the methodology used to answer the research questions. Afterwards, the main findings are discussed in a results section. Finally, the paper ends up with conclusions and policy implications based on its results.

Literature Review

Financial integration, inclusion, and stability: Main concepts

International financial integration has been used in the literature interchangeably with other terms such as financial openness, financial liberalization, the free flow of capital, and the removal of capital controls (Boubakri and Guillaumin 2015). Financial integration implies the satisfaction of the law of one price among the integrated markets. The law of one price leads to unified returns or prices of assets that generate the same cash flows regardless of the location they are traded in, without considering the exchange rate differentials, transaction, and tax costs; it also results in increased co-movements of asset prices between different markets. Therefore, financial integration means that assets bearing the same characteristics, such as identical risk and maturity levels, yield the same return regardless of the market place (Alotaibi 2014; Atyeh and Al-Rashed 2012, 2013; Bentes 2015; Chiwira and Tadu 2013; Nardo et al. 2017; Nor 2012; Srivastava and Chattopadhyay 2020). A lack of integration between markets translates into arbitrage and risk diversification opportunities for investors working in different countries (Nardo et al. 2017; Neaime 2012; Wu 2020). To summarize, the study defines financial integration as the degree of interdependencies among financial markets that leads, in case of complete integration, to unified prices of identical assets as if they are being traded in one market segmented into different geographical locations; this degree of interdependencies can be detected through the free flow of capital and the magnitude of co-movements or correlations between markets.

Previous literature highlighted the multiple benefits arising from financial integration. These benefits include decreasing the cost of capital, improving the efficiency of capital allocation, fighting market deficiencies such as moral hazard by reducing information asymmetry, enhancing

risk diversification and sharing, promoting specialization among markets, creating new financial instruments, supporting financial development, helping pave the way towards a potential monetary union among countries with integrated financial markets, and eventually leading directly and indirectly to higher economic growth and development (Alotaibi 2014; Chinn and Ito 2006; Chiwira and Tadu 2013; Ezzati 2013; Neaime 2005a, 2005b; Wu 2020).

Despite of the theoretically appealing benefits of financial integration, on the empirical side, the relationship between financial integration and economic growth has not been found to be unequivocally robust (Neaime 2005a). This might go back to the linkages between financial integration and other variables, as emphasized by the literature, such as trade openness and financial market development (Alotaibi 2014; Alotaibi and Mishra 2017; Chinn and Ito 2006; Chiwira and Tadu 2013; Garali and Othmani 2015; Nardo et al. 2017; Taghizadeh-Hesary et al. 2019). The role of institutions and governance and the spread of crises among markets due to integration can also attribute to the empirically controversial relationship between financial integration and both financial development and economic growth (Taghizadeh-Hesary et al. 2019). Moreover, governance also contributes to financial development as found by (Gazdar and Cherif 2015) applying on the case of MENA.

Increased integration leads to contagion or spillover effects among financial markets. Contagion refers to the increase in co-movements or correlations between markets in times of crises, which might offset the risk diversification benefits of financial integration and lead to an increased cost of capital (McIver and Kang 2020; Neaime, Lagoarde-Segot, and Audencia 2013; Ben Rejeb and Boughrara 2015). In addition to the contagion effects among integrated stock markets, banks can also suffer from different contagion risks, such as default and distress contagion, due to their growing interconnectedness (Keregero and Fan 2019). However, contagion is not only the result of increased financial integration. It can be attributed to both fundamental economic factors (fundamental contagion) and the elevated interrelationships between financial markets, which results after controlling for the fundamental effects, or what is known as the shift contagion (Chiwira and Tadu 2013; Neaime 2012; Sebai and Ellouz 2017). In light of that, research has sometimes relied on detecting spillover effects to prove integration (Boubakri and Guillaumin 2015).

However, the majority of research on contagion addressed spillover impacts in the developed financial markets (Dania and E. Spillan 2013). Interest on studying the financial markets of developing countries has only started to grow recently. Moreover, contagion effects originally created in the developed markets and consequently spread to the developing ones have brought the attention to the importance of regional integration as an alternative to the global or international one, which was obvious in some regions such as East Asia where regional integration has taken

progressive steps following the Global Financial Crisis of 2008 (Boubakri and Guillaumin 2015). (Ben Rejeb and Boughrara 2015) highlighted the transmission of volatility among emerging markets and between emerging and developed markets with an amplifying impact in case of geographical proximity. (Bhunia and Chandra 2017) also referred to the transmission effect from the developed markets to the emerging ones applying on the English and Indian cases. (Chiwira and Tadu 2013) examined financial integration and contagion in Africa and discussed the tradeoff between the advantages of integration and avoiding instabilities resulting from the concomitant contagion effects. (Neaime 2016) argued that the more internationally integrated financial markets in MENA are increasingly vulnerable to external crises due to their relatively weaker regional integration.

In general, the literature on financial markets in the Middle East and North Africa (MENA) is still under development. Additionally, available studies either have focused on international integration in one country or integration among a small group of countries in the MENA region; mainly addressed the relationship between integration and crises contagion in MENA markets; or just theoretically discussed and descriptively tracked financial and trade integration among Arab countries (Abou-Zaid 2011; Alotaibi 2014; Alotaibi and Mishra 2017; Arikat and Saymeh 2014; Atyeh and Al-Rashed 2012, 2013; Dania and E. Spillan 2013; Goucha and Hamdi 2016; Jamaani and Roca 2015; Kapar, Olmo, and Ghalayini 2020; Lagoarde-Segot and Lucey 2007; Maghyereh 2006; Neaime 2005a, 2005b, 2012, 2016; Neaime, Lagoarde-Segot, and Audencia 2013; Nor 2012; Paskelian, Nguyen, and Jones 2013; Sebai and Ellouz 2017). These papers obtained mixed results; while a group of studies referred to a stronger international integration compared to a weaker regional one, others reported the opposite conclusion. In addition, some research studied the determinants of global financial integration in MENA including (Garali and Othmani 2015) that found significant impacts of per capita income and trade openness.

Financial inclusion refers to the expansion of affordable formal financial services, including savings, borrowing, payments and transfers, as well as insurance, to cover different segments of the population, especially the poor and low-income individuals, families, and businesses (Alber 2019a; Awad and Eid 2018; Morgan and Pontines 2014; Nguyen 2020). Some papers narrowly define financial inclusion as the percentage of population with access to formal financial services (Evans and Adeoye 2016). The opposite term to financial inclusion is financial exclusion which is associated with higher rates of access to and use of informal financial services that entail increased levels of risk (Alber 2019b). There are two types of financial exclusion: involuntary and voluntary. Involuntary financial inclusion is due primarily to the lack of access to formal financial services due to unaffordability, shortage of service providers, high perceived risk, or insufficient public awareness. Voluntary financial exclusion or self-withdrawal from the financial system might be

the result of religious beliefs or cultural norms (Alber 2019a; Awad and Eid 2018; Evans and Adeoye 2016). The lack of trust in the financial system can also lead to voluntary financial exclusion. Therefore, this paper defines financial inclusion as the degree towards achieving a universal coverage by formal financial services, including savings, borrowings, payments, transfers, and electronic transactions, to encompass all of the financial operations overtaken by all population segments and economic sectors in a given country.

The literature refers to the multifaceted nature or the multidimensionality of financial inclusion. These dimensions mainly comprise access or penetration, usage, and quality or efficacy of access and usage (Alber 2019a, 2019b; García 2016; Nguyen 2020). Some economies might enjoy high levels in financial depth measured by the percentage of bank deposits to GDP, but fall shortly when it comes to the frequency of using formal financial services or access by the poor and vulnerable to formal financial services (Cull, Demirgüç-kunt, and Lyman 2012; Evans and Adeoye 2016; Pearce 2011). Accordingly, several indicators have been created to assess the different dimensions of financial inclusion. Indicators of financial access include among others the numbers bank branches and ATM machines; the frequency of usage might be detected through an indicator such as the percentage of adults who own accounts; and quality, which is one of the most difficult dimensions of financial inclusion to assess and lacks concrete indicators to measure, can be analyzed, for instance, by measuring the rate of customer satisfaction with financial services (Alber 2019b; García 2016). The impact of financial inclusion on improving people's lives is also important to analyze and take into consideration (Alber 2019a). The goals of financial inclusion are numerous and touching on many economic, financial, social, and political areas simultaneously. On the economic and financial sides, inclusion would help stimulate capital mobilization for saving and investment; revitalize entrepreneurship; enforce the transmission of a country's monetary policies; and promote growth. On the social and political sides, financial inclusion should support efforts of suppressing inequalities and alleviating poverty, thus maintaining social coherence and political stability (Alber 2019a; Awad and Eid 2018; Neaime and Gaysset 2018). Accordingly, many countries have recognized the importance of financial inclusion and set it as a national policy objective along with financial stability, integrity, and consumer's protection or what is defined as the "I-SIP" framework (Alber 2019b).

Financial inclusion is affected by several economic and non-economic factors. Studies tried to shed light on the determinants of financial inclusion which seem to be theoretically relevant such as income levels, economic growth rates, and inflation. Mixed results were obtained depending on the sample of countries used in analysis, period of study, and analysis technique. (Evans and Adeoye 2016) proved that per capita income and literacy have significant effects on financial inclusion in Africa. (Alber 2019a) also found a positive impact of GDP per capita in contrast to a

negative impact of GDP growth on financial inclusion. On the micro level, (Demirguc-Kunt et al. 2018) showed that inequalities of account ownership in developing countries are caused by factors that include gender (being a female), belonging to young age groups, weak income, and low levels of education; whereas (Awad and Eid 2018) found that, focusing on the Egyptian case, illiteracy, gender, and lack of awareness impede financial inclusion.

Financial stability is expressed through a constant condition of a smoothly run solid financial system that safeguards a sound relationship between savers and borrowers in light of high quality levels of governance and sustainably developed financial infrastructure. Stability enhances the resilience of a financial system and promotes its capability to absorb shocks and get through any periods of stressful conditions, including macroeconomic instabilities or disruptions in income, production, consumption, saving, and investment, without severe malfunctions. In other words, financial stability aims to maintain the basic functions of a financial system of channeling funds between savers and investors, processing payments, managing risk, and pricing assets even during crises times (Alber 2019b; García 2016). More broadly, financial stability characterizes a healthy complete financial system of intermediaries, markets, and infrastructure that can dodge the major negative impacts and imbalances resulting from shocks and crises, in order to ensure an uninterrupted smoothly working financial system that can maintain its main function of mobilizing savings towards profitable investment opportunities (Gadanecz and Jayaram 2009; Morgan and Pontines 2014). Therefore, financial stability can be used in general to refer to a state of constantly healthy, strong, and resilient financial system that can absorb internal and external shocks and continue performing its basic functions and providing its main services efficiently. However, it is worth noting that stability might not always be associated with enhanced efficiencies within the financial institutions as shown by (Alber 2017) which found a tradeoff between financial stability and efficiency in banks in the MENA region during 2004-2013.

Linkages between financial integration, inclusion and stability: Insights from previous research

Since financial integration leads to enhanced efficiency of capital allocation and increased diversification and sharing of risk, promoting financial integration is supposed to lead to enforced financial stability (Boubakri and Guillaumin 2015; Chiwira and Tadu 2013). However, crises whose spillover effects spread among the increasingly integrated markets can offset this benefit and cause financial destabilizations. However, regional integration can compensate the spillover effects of crises that originate in international markets. Regional financial integration may seem more beneficial to reduce the heightened contagion risk accompanying international integration (Neaime 2005a). Moreover, regional integration, similar to the international one, can increase the efficiency of capital and resource allocation among markets (Maghyereh 2006). Focusing on the MENA region, (Neaime 2016) emphasized the limited impact of protecting national MENA

markets and suppressing their regional integration on achieving financial stability. The paper also concluded that regional integration leads to higher stability on the long run, which in turn contributes to more financial integration and development. Therefore, it is important to study the relationship between both the international and regional financial integration and stability as well as the role of crises in this relationship to identify the possible balancing approaches that can mitigate the impacts of crises and maintain financial stability especially in the developing countries.

The literature has not yet extensively investigated the linkages between financial inclusion and stability (Cull, Demirgüç-kunt, and Lyman 2012). Furthermore, research has not been decisive on the relationship between financial inclusion and stability. Theoretically speaking, on one hand, stability should help sustain low levels of inflation and interest rates that lead to an increased affordability of formal financial services and therefore to more financial inclusion. At the same time, financial inclusion can also help enhance stability by giving households more financial capacity to absorb any shocks and increasing the opportunities of risk diversification through a widened deposit base; and accordingly raising the efficiency of financial intermediation. On the other hand, the expansion of financial coverage might jeopardize stability if not accompanied by improved financial education, rigorous regulations, and strong institutions (Alber 2019b; Alotaibi 2014; García 2016; Morgan and Pontines 2014).

However, the empirical literature has proven that even the default risk, which could presumably increase due to the expansion of financial services to small borrowers, is not as harmful to stability as the large unpredictable lost loans (Cull, Demirgüç-kunt, and Lyman 2012). (Morgan and Pontines 2014) also showed that increased inclusion, in terms of more loans offered to small and medium enterprises, induce more stability. (Neaime and Gaysset 2018) found a positive effect of inclusion on stability in MENA. (Awad and Eid 2018) addressed the relationship between financial inclusion and stability in the MENA region, focusing on Egypt, and illustrated that small depositors and borrowers brought into the financial system through an expanded coverage or inclusion, which is supported by strong regulations, can help maintain financial stability during crises. To conclude, previous research has shown that the relationship between financial stability and inclusion is not unidirectional. In addition, more research is needed to delve deeply into the relationship between financial inclusion and stability especially in the emerging economies including the MENA region.

Methodology

The main objective of the study is to investigate the interlinkages between financial integration, inclusion, and stability in the MENA region over time. These three variables are complex to measure and have no single universal indicators to assess. In addition, data on the MENA region

suffer from gaps over longer time periods for many of the indicators used to assess integration, inclusion, and stability. Therefore, the choice of variables used to assess international financial integration, inclusion, and stability depends mainly on the most complete available indicators, which were also used by the literature, as the study tries to incorporate the biggest possible number of MENA countries in analysis. The paper focuses on analyzing the stock markets and the banking sectors of the following Arab countries in the MENA region: Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Tunisia, and the United Arab Emirates, in addition to Turkey. Stock exchanges and banks are chosen for analysis since they are the two biggest dominating segments of the financial system in the MENA region. Moreover, the banking sector and stock markets are closely related. (Chinn and Ito 2006) found that the development of the banking sector affects the development of stock markets. Period of study extends from 1998 until the latest available data on the MENA region.

To answer its research questions, the paper tests three main hypotheses, which are as follows:

H11: regional integration has increased over time in MENA

H12: financial integration, inclusion, and stability in MENA are related

H13: crises affect the linkages between integration, inclusion, and stability in MENA.

To test the first hypothesis, an assessment of regional integration in MENA is needed. In general, the measures of financial integration can be classified into de jure and de facto measures. The de jure indicators detect the regulations that aim to promote financial integration. De facto measures are furtherly divided into quantity-based and price-based indicators (Boubakri and Guillaumin 2015; Ekpo and Chuku 2017; Srivastava and Chattopadhyay 2020; Taghizadeh-Hesary et al. 2019). The quantity-based indicators track the actual flows of capital across financial markets, such as the percentage of foreign assets and liabilities to GDP; whereas the price-based assessment of integration might detect the co-movements or correlations between stock market indices (Ekpo and Chuku 2017; Mensah and Premaratne 2018).

Calculating correlations between stock market returns is one of the possible approaches to study regional integration. The Dynamic Correlation Coefficient (DCC) is more suitable to measure associations over time since the unconditional correlation might suffer from the sensitivity to outliers and the problems of underestimation over some periods or overestimation in times of crises due to the high volatilities that prevail in markets during these times (Nardo et al. 2017). Moreover, dynamic correlations account for heteroscedasticity (Mensah and Premaratne 2018). Therefore, the study fits a series of univariate DCC GARCH (1,1) models using returns of MENA stock

indexes. Returns are computed using the daily closing prices of each country's stock market index[1] as follows:

$$r_{i,t} = (lnP_{i,t} - lnP_{i,t-1}) \times 100$$

$r_{i,t}$ is the stock market return of country i at time (day) t, $lnP_{i,t}$ is the natural logarithm of the stock market's index closing price of country i at time (day) t, and $lnP_{i,t-1}$ is the natural logarithm of the stock market's index closing price of country i at the previous period (day) $t-1$.

A univariate GARCH (1,1) model depends on two main equations; the mean equation (equation (1)) and the conditional variance equation (equation (2)), which assume the following specifications:

$$r_{i,t} = \alpha_i + \beta_i r_{i,t-1} + \varepsilon_{i,t} \qquad (1)$$

$$h_{i,t} = \delta_{i0} + \delta_{i1}\varepsilon_{i,t-1}^2 + \delta_{i2}h_{i,t-1} \qquad (2)$$

The mean equation (1) estimates $r_{i,t}$, which is the stock market return of country i at time (day) t, using its lagged value at time (day) $t-1$. α_i and β_i are the model's coefficients and $\varepsilon_{i,t}$ are the model's error terms. Equation (2) is used to estimate the conditional variance $h_{i,t}$, which is a function of lagged errors $\varepsilon_{i,t-1}$ (ARCH term) and lagged forecasted variance $h_{i,t-1}$ (GARCH term) (Abou-Zaid 2011; Dania and E. Spillan 2013; Neaime 2012).

The conditional variance-covariance matrix in the multivariate DCC-GARCH model, H_t, can be written as:

$$H_t = D_t R_t D_t \qquad (3)$$

where D_t is the diagonal matrix whose diagonal elements are the square roots of the conditional variance-covariance matrices of the univariate GARCH models, denoted as $h_{i,t}$; and R_t is the matrix of conditional correlations (Alotaibi 2014; Alotaibi and Mishra 2017; Cai, Tian, and Hamori 2016; R. Engle 2002; R. F. Engle and Sheppard 2001; Mensah and Premaratne 2018).

To construct an index of regional integration, the paper computes the yearly averages of the correlation coefficients for each stock market as a measure of its regional integration with other MENA stock markets.

To test the second and third hypotheses and study the relationships between integration, inclusion, and stability, the study builds a number of Panel Vector Autoregression (PVAR) models. In

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[1] Daily closing prices of MENA countries stock market indexes are extracted from Thomson Reuters Eikon (Datastream) database; information on the indexes used in analysis are presented in the appendix.

general, panel models consider heterogeneity among countries, are suitable to address dynamic relationships, and control for missing data (Evans and Adeoye 2016). Additionally, VAR models can assume endogeneity among all variables used to build the main model (Maghyereh 2006). One of the main advantages of using a PVAR model is estimating one VAR model with one set of estimated parameters for all countries included in analysis instead of building a separate VAR model for each country, which is the case with the Global VAR models, resulting in increased degress of freedom (Bouvet, Brady, and King 2013). This might be more helpful and feasible to use especially in light of the limited number of observations available for analysis and the missing data for some MENA countries during the period of study. PVAR models can also offer better estimates of spillover effects among countries and impulse response functions that are robust to non-stationarity and co-integration among the analyzed series levels, which is an advantage in interpreting their results (Bouvet, Brady, and King 2013).

A PVAR model can be specified as follows:

$$Z_{i,t} = A(L)Z_{i,t-1} + BX_{i,t} + u_i + e_{i,t}$$

Z is the matrix of endogenous variables, $A(L)$ is a matrix polynomial in the lag operator L, X is the vector of exogenous variables, if exist, with parameters B, and u and e are the panel fixed-effects and idiosyncratic error terms (Abrigo and Love 2016; Bouvet, Brady, and King 2013).

The three main endogenous variables included in the PVAR model are integration, inclusion, and stability. The paper tries to employ one measure on regional financial integration and another on international financial integration. The regional indicator established out of the correlation coefficients between MENA stock markets is used as the variable on regional financial integration. For assessing international integration, the paper uses two measures of international financial integration, the de jure Chinn-Ito KAOPEN index along with the percentage of net foreign assets to GDP as a de facto measure of integration. KAOPEN capital account openness index is one of the most famous de jure indicators of international financial integration, which is constructed applying the Principal Component Analysis on the binary variables included in the Annual Reports on Exchange Arrangements and Exchange Restrictions (AREAER) released by the IMF to assess regulatory controls or restrictions over capital and current accounts. This index is updated regularly and covers the period from 1970 until 2018 for 182 economies around the World including MENA and Arab countries (Chinn and Ito 2006, 2008; Ito and Chinn 2020). Since de jure measures might not reflect actual flows, it is important to use de facto and de jure measures together to accurately assess financial integration (Ekpo and Chuku 2017). Accordingly, the paper employs the percentage of net foreign assets to GDP as a de facto measure of international integration.

Due to the lack of data for several MENA countries during several years, the indicator of financial inclusion chosen with the most complete data during 1998-2018 is bank deposits to GDP. As with

the cases of financial integration and inclusion, financial stability is also multifaceted with no agreed-upon single indicator to measure (García 2016). The selection of an indicator to assess financial stability depends on the structure of the financial system; therefore, if the banking sector is significantly more important than stock markets, for example, then financial stability can be assessed by measuring the stability or health of the banking sector in the economy (Gadanecz and Jayaram 2009). Since this is the case in the economies of MENA, the main measure used for financial stability is the bank Z-score indicator, which is calculated by dividing the summation of the return on assets and the ratio of equity to assets by the standard deviation of the return on assets for banks in the economic system (Alber 2017, 2019b). This indicator is one of the widely used measures to detect financial stability by showing the number of the standard deviations a banking system must fall below to become insolvent, or in other words, the distance of a country's banking system from insolvency; therefore, the higher the Z-score the more stable the country's financial system is (Alber 2019b; García 2016; Morgan and Pontines 2014).

Besides the main indicators of integration, inclusion, and stability, other endogenous variables inserted in the PVAR models include financial development and governance indicators. Financial development affects and can be affected by financial integration, inclusion, and stability. The development of financial markets affects integration as found by (Alotaibi 2014; Alotaibi and Mishra 2017; Ananchotikul, Piao, and Zoli 2015). Financial development is also a prerequisite for stability and alleviating negative crises spillover effects (Chiwira and Tadu 2013). In addition, financial development stimulates inclusion (Cull, Demirgüç-kunt, and Lyman 2012). Therefore, the model also includes stock market capitalization to GDP as a measure used in the literature to assess financial market development (Garali and Othmani 2015). This indicator represents the percentage of the total value of all listed shares in a stock market out of GDP. The regulatory quality index constructed by the World Bank among other World Governance indicators is used as an indicator of governance. Data on financial integration (percentage of net foreign assets to GDP), inclusion, and stability in addition to the other control variables used in analysis are extracted from the World Bank and the IMF databases.

Finally to estimate the impacts of crises, one dummy is created to measure the impact of the Global Financial Crisis that assumes the value of 1 from 2008 until 2010, and the other dummy aims to assess the effect of Arab Uprisings and takes on the value of 1 starting 2011 till 2018 and zero otherwise.

Analysis and Results

This section starts with an analysis of regional financial integration among stock markets in MENA. Figures 1 shows the line charts of daily returns in MENA stock markets using available data during 1998-2019, which show the volatility clustering of returns in these stock markets.

Volatility clustering is the tendency of large variations in stock market returns to be followed by similar large variations and vice versa (Maghyereh 2006). This might refer to the increased co-movements of markets during crises as shown by (Goucha and Hamdi 2016), which referred to stronger integration links among MENA countries during the Global Financial Crisis of 2008. Descriptive statistics also show that stock markets in MENA are characterized by higher risks (standard deviations) compared to average returns (Table 1). Moreover, volatilities were higher in all MENA markets during the global financial crisis (2008-2010) compared to (2011-2019), which might imply the weaker impact of political instabilities compared to the impact of the Global Financial Crisis on the performance of stock markets in MENA (Table 2).

Correlations also show the weaker regional linkages among financial markets in MENA compared to their interrelationships with international markets including European markets (UK and Germany), BRICS (Brazil, Russia, India, China, and South Africa), and the US markets (Table 3 and Table 4). Geographical proximity matters for regional integration as shown in the case of Tunisia which has the strongest correlation with Morocco compared to weaker or insignificant correlations with other countries in the region. On the other hand, Tunisia had significant correlations with all international markets analyzed except the US. The GCC countries also enjoy higher levels of correlations among each other. Egypt, Lebanon, Morocco, Oman, Saudi Arabia, Tunisia, and Turkey all have significant correlations with the majority of international markets. Almost all of the significant regional correlations and correlations with international markets are positive. It is also worth noting that countries with strong links to the US market such as Egypt, Morocco, and Saudi Arabia witnessed an increase in volatility during the Global Financial Crisis, compared to Tunisia, for example, which had a decrease in volatility and do not have a significant correlation with the US market.

To better assess the co-movements between stock markets, DCC GARCH models are built to measure the dynamic correlations among MENA stock. The ARCH Lagrange Multiplier (LM) test was applied on all the return series and the null hypothesis of no ARCH effect (Cai, Tian, and Hamori 2016) was rejected. This is a precondition that must be verified before estimating the DCC GARCH models (Mensah and Premaratne 2018). The models are tested for all MENA stock markets series of daily returns; however, results could only be obtained for a subset of series. Figure 2 shows the Dynamic Correlations Coefficients Results showed significant dynamic correlations between the market of Egypt and each of Lebanon, Morocco, Oman, and Saudi Arabia. The Turkish market is particularly correlated with the GCC markets. There is also an increase in the dynamic correlations over time between Qatar and Saudi Arabia and Turkey and the UAE. Peaks in dynamic correlations are also observed during the Global Financial Crisis, which reflects increasing co-movements between markets during crises.
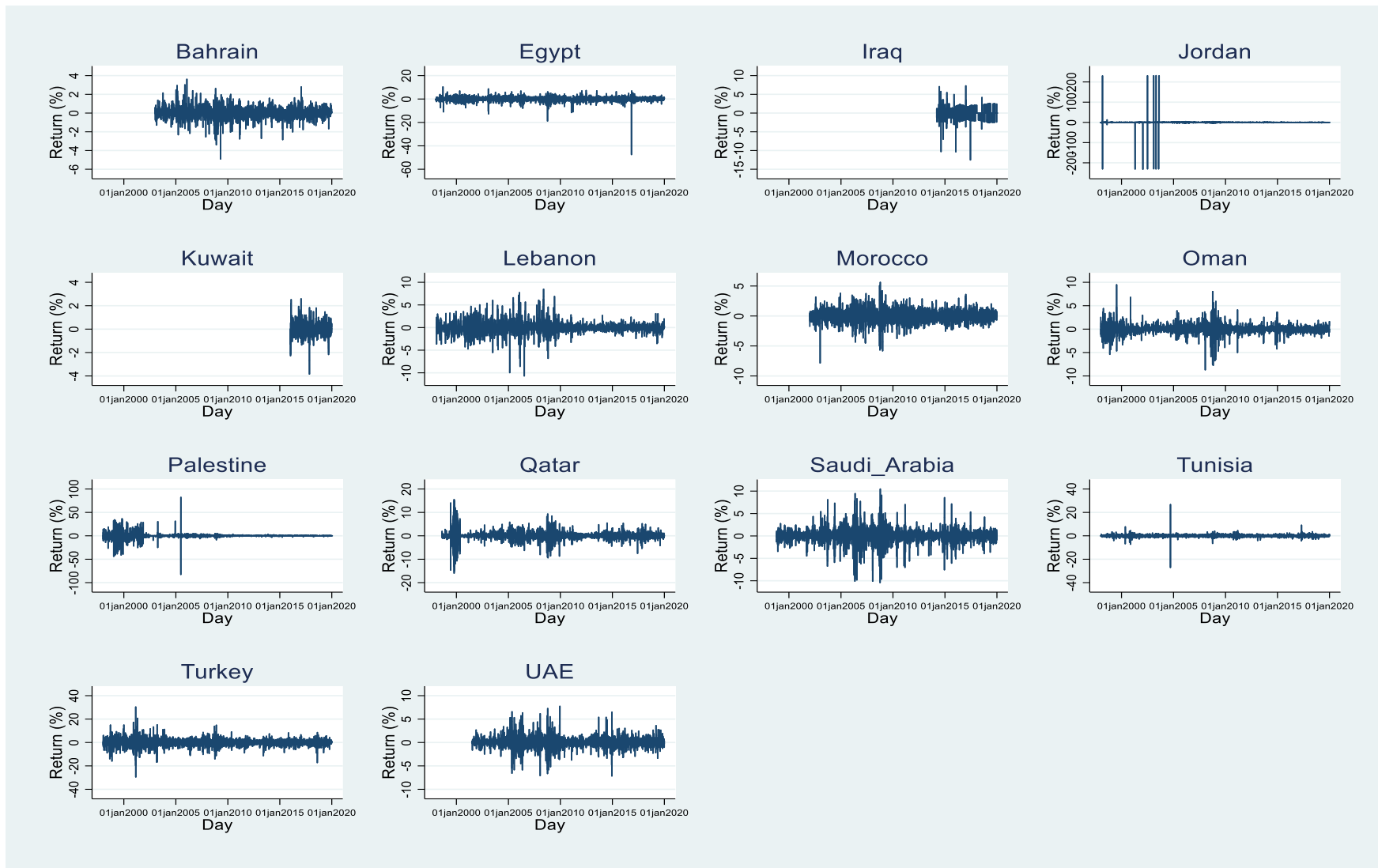
Figure 1: Daily Stock Returns, MENA Markets, (1 January 1998 - 31 December 2019)

Source: Calculated based on data from Thomson Reuters Eikon (Datastream) database

Table 1: Descriptive Analysis of Daily Stock Returns, MENA Markets, (1 January 1998 - 31 December 2019)

	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Morocco	Oman	Palestine	Qatar	Saudi Arabia	Tunisia	Turkey	UAE
Number of Observations	4344	5835	1475	5837	1018	5819	4602	5837	5837	6916	6866	7034	7034	5919
Mean	0.010	0.004	-0.059	-0.081	0.037	-0.004	0.029	-0.012	0.034	0.033	0.026	0.014	0.006	0.036
Median	0	0	0	0	0	0	0.015	0	0	0	0	0	0	0
Standard Deviation	0.485	1.577	1.151	10.488	0.507	0.969	0.891	0.814	3.564	1.426	1.199	0.829	2.408	0.920
Min	-4.904	-47.448	-12.516	-231.841	-3.843	-10.688	-7.843	-8.696	-82.607	-15.962	-10.411	-27.074	-29.496	-7.155
Max	3.613	10.372	7.276	231.528	2.590	8.490	5.625	9.482	82.215	15.491	10.479	26.723	30.342	7.738
Skewness	-0.342	-5.400	-1.451	-3.559	-0.391	0.157	-0.324	-0.473	-0.810	-0.268	-0.954	-0.166	-0.189	0.110
Kurtosis	12.152	151.276	25.180	480.569	10.034	19.644	8.571	26.825	147.229	34.466	18.820	324.804	17.798	15.029
Jarque-Bera Test (sig.)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source: Calculated based on data from Thomson Reuters Eikon (Datastream) database

Table 2: Volatility by Period, MENA Markets, (1 January 1998 - 31 December 2019)

	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Morocco	Oman	Palestine	Qatar	Saudi Arabia	Tunisia	Turkey	UAE
Standard Deviation (1998-2007)	0.502	1.454	.	15.197	.	1.192	0.943	0.775	5.120	1.664	1.264	0.912	2.810	0.944
Standard Deviation (2008-2010)	0.644	1.842	.	1.134	.	1.166	1.187	1.439	1.160	1.680	1.579	0.761	2.317	1.194
Standard Deviation (2011-2019)	0.403	1.622	1.150	0.499	0.507	0.471	0.721	0.515	0.412	0.863	0.890	0.731	1.773	0.750

Source: Calculated based on data from Thomson Reuters Eikon (Datastream) database

Table 3: Correlations among Stock Markets in MENA, (1 January 1998 - 31 December 2019)

	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Morocco	Oman	Palestine	Qatar	Saudi Arabia	Tunisia	Turkey	UAE
Bahrain	1													
Sig.														
Egypt	0.095	1												
Sig.	0.000													
Iraq	0.019	0.015	1											
Sig.	0.459	0.562												
Jordan	0.005	0.031	-0.012	1										
Sig.	0.766	0.020	0.634											
Kuwait	0.230	0.104	0.104	0.020	1									
Sig.	0.000	0.001	0.001	0.535										
Lebanon	0.039	0.046	0.058	0.004	0.005	1								
Sig.	0.010	0.001	0.027	0.759	0.883									
Morocco	0.041	0.077	0.041	0.008	0.073	0.057	1							
Sig.	0.007	0.000	0.112	0.606	0.020	0.000								
Oman	0.219	0.154	0.020	0.030	0.154	0.071	0.079	1						
Sig.	0.000	0.000	0.446	0.022	0.000	0.000	0.000							
Palestine	0.034	0.015	0.030	0.003	0.070	0.024	0.019	0.0131	1					
Sig.	0.025	0.267	0.251	0.811	0.026	0.070	0.196	0.3155						

	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Morocco	Oman	Palestine	Qatar	Saudi Arabia	Tunisia	Turkey	UAE
Qatar	0.157	0.119	0.023	0.022	0.183	0.038	0.054	0.198	0.024	1				
Sig.	0.000	0.000	0.371	0.095	0.000	0.004	0.000	0.000	0.073					
Saudi Arabia	0.089	0.138	-0.002	0.013	0.182	0.073	0.069	0.159	0.040	0.103	1			
Sig.	0.000	0.000	0.945	0.333	0.000	0.000	0.000	0.000	0.003	0.000				
Tunisia	0.015	0.006	0.001	-0.002	0.036	0.032	0.244	0.041	0.015	0.025	0.020	1		
Sig.	0.339	0.650	0.966	0.895	0.254	0.017	0.000	0.002	0.254	0.039	0.102			
Turkey	0.032	0.087	0.018	-0.009	0.016	0.016	0.145	0.048	0.046	0.049	0.081	0.084	1	
Sig.	0.035	0.000	0.495	0.501	0.602	0.239	0.000	0.000	0.001	0.000	0.000	0.000		
UAE	0.161	0.164	0.018	0.000	0.174	0.054	0.047	0.344	0.070	0.368	0.215	0.020	0.076	1
Sig.	0.000	0.000	0.484	0.982	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.117	0.000	

Source: Calculated based on data from Thomson Reuters Eikon (Datastream) database

Table 4: Correlations between Stock Markets in MENA and International Markets, (1 January 1998 - 31 December 2019)

	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Morocco	Oman	Palestine	Qatar	Saudi Arabia	Tunisia	Turkey	UAE
UK	0.027	0.088	0.091	0.028	0.076	0.061	0.221	0.058	0.012	0.069	0.093	0.157	0.361	0.178
Sig.	0.115	0.000	0.002	0.064	0.030	0.000	0.000	0.000	0.422	0.000	0.000	0.000	0.000	0.000
Germany	0.005	0.072	0.077	0.018	0.056	0.058	0.246	0.044	0.012	0.037	0.107	0.168	0.354	0.139
Sig.	0.761	0.000	0.008	0.220	0.112	0.000	0.000	0.003	0.420	0.013	0.000	0.000	0.000	0.001
Brazil	-0.003	0.048	0.006	0.000	0.050	0.047	0.151	-0.010	0.024	0.004	0.068	0.059	0.293	0.032
Sig.	0.863	0.001	0.829	0.986	0.156	0.002	0.000	0.485	0.102	0.804	0.000	0.000	0.000	0.434
Russia	0.061	0.066	0.025	0.012	0.100	0.032	0.160	0.084	0.002	0.041	0.101	0.065	0.321	0.220
Sig.	0.000	0.000	0.393	0.437	0.004	0.032	0.000	0.000	0.871	0.006	0.000	0.000	0.000	0.000
India	0.035	0.133	0.092	0.005	0.045	0.061	0.100	0.078	-0.010	0.094	0.085	0.058	0.209	0.269
Sig.	0.040	0.000	0.002	0.716	0.201	0.000	0.000	0.000	0.505	0.000	0.000	0.000	0.000	0.000
China	0.037	0.086	0.014	0.013	0.078	0.056	0.085	0.079	0.002	0.091	0.082	0.048	0.109	0.148
Sig.	0.043	0.000	0.643	0.467	0.027	0.002	0.000	0.000	0.916	0.000	0.000	0.008	0.000	0.000
South Africa	0.024	0.082	0.053	0.011	0.071	0.051	0.218	0.047	0.021	0.042	0.098	0.164	0.393	0.155
Sig.	0.158	0.000	0.069	0.469	0.042	0.001	0.000	0.002	0.168	0.006	0.000	0.000	0.000	0.000
US	-0.026	0.030	0.047	-0.013	-0.009	0.027	0.097	-0.031	0.006	0.001	0.079	0.023	0.246	0.040
Sig.	0.125	0.045	0.107	0.393	0.804	0.074	0.000	0.036	0.711	0.963	0.000	0.116	0.000	0.318

Source: Calculated based on data from Thomson Reuters Eikon (Datastream) database
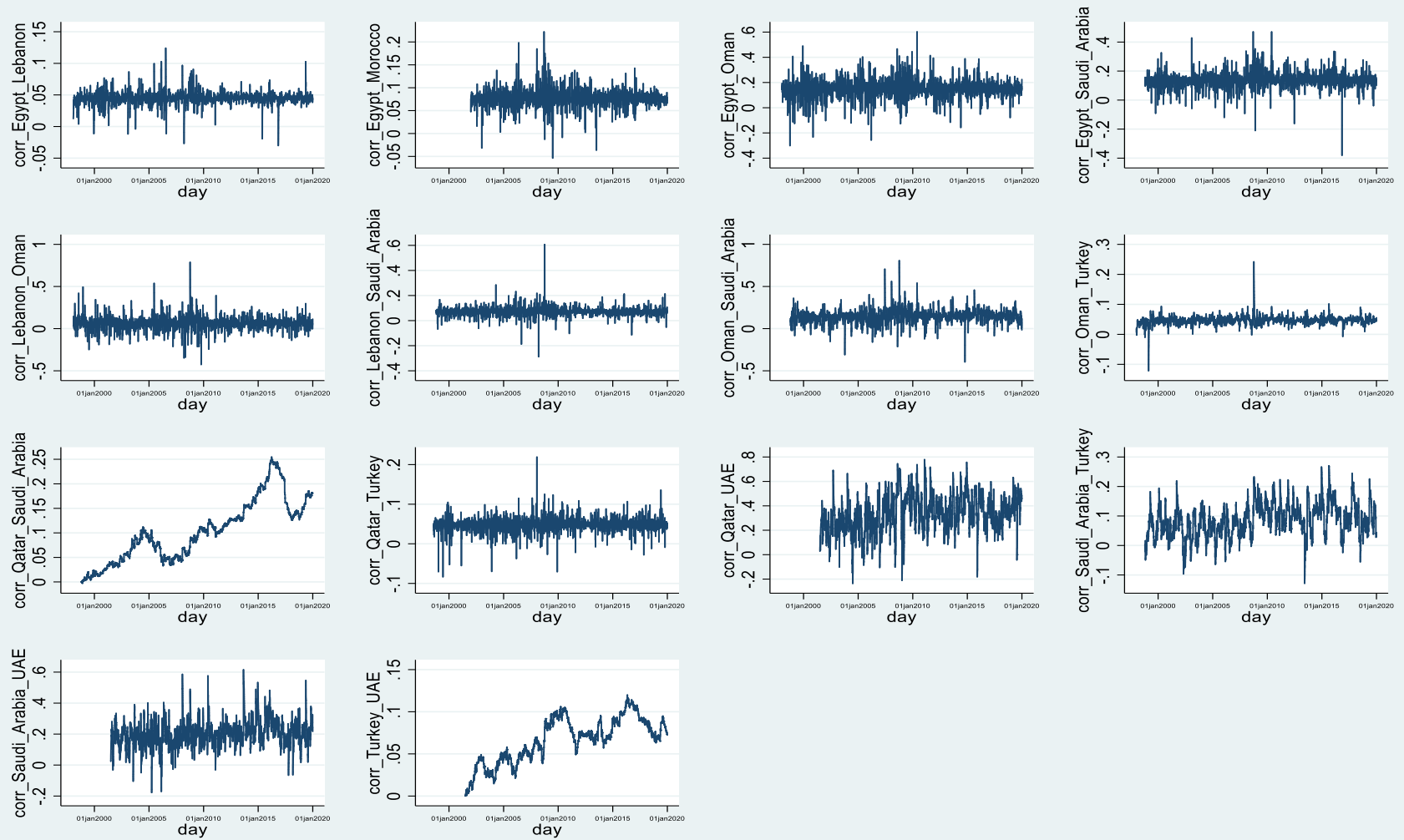
Figure 2: Dynamic Correlation Coefficients, MENA Markets, (1 January 1998 - 31 December 2019)

Source: Constructed based on the DCC GARCH (1,1) models results

To examine the relationships between financial integration, inclusion, and stability, the study builds a PVAR model that includes potential indicators of these variables. Moreover, other potential variables that could affect these relationships, which are financial development and governance, are employed in the analysis. Available data on all indicators extends from 1998 until 2017.

Financial integration is divided into regional and international integration. An index of regional integration was constructed by calculating the yearly averages of the correlation coefficients for each stock market with other MENA markets. Figure 3 shows constant correlational trends over time with peaks during the Global Financial Crisis.
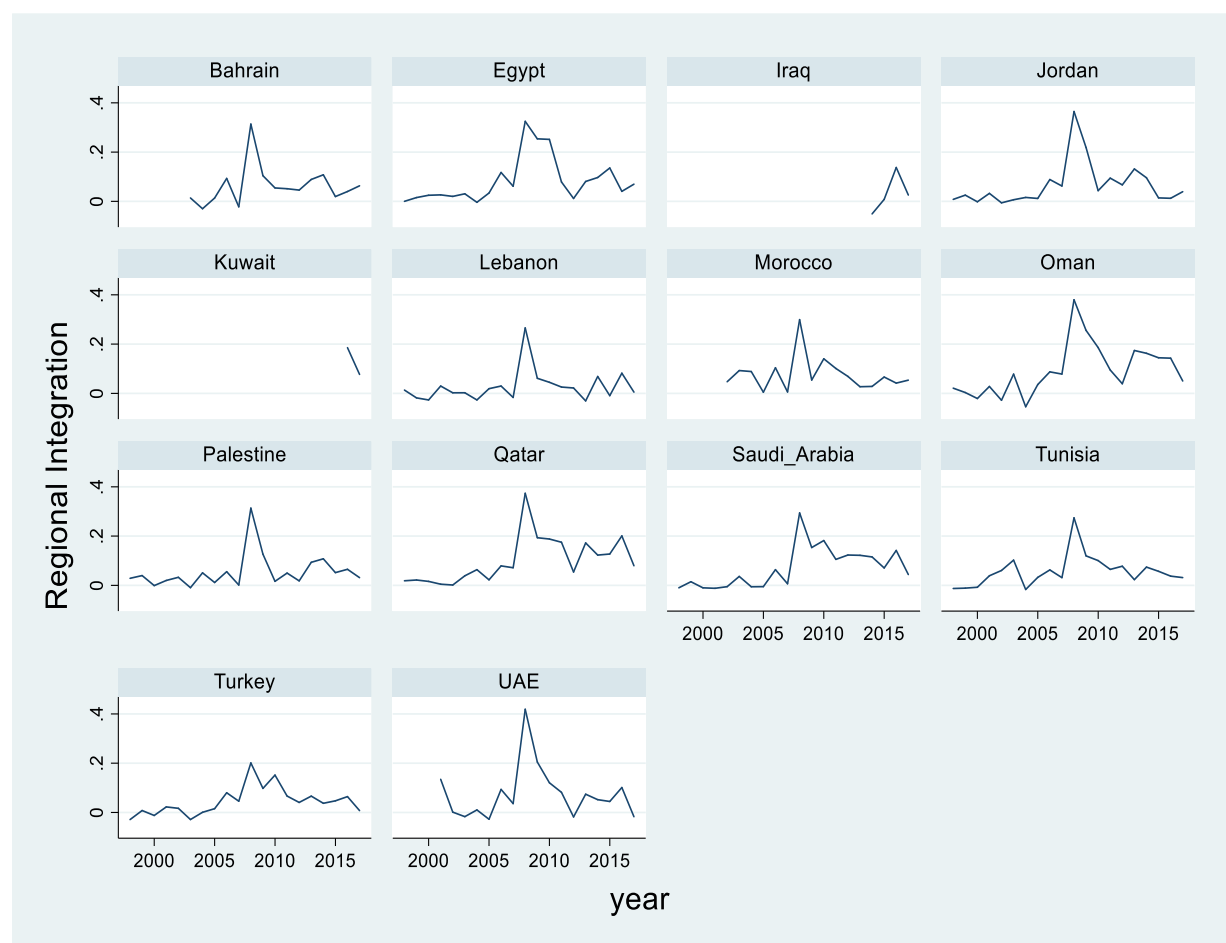
Figure 3: Regional Financial Integration Index among MENA Markets, (1998 - 2017)

Source: Calculated by the researcher

International integration is measured by one de jure and one de facto indicators. The Chinn-Ito KAOPEN is used as de jure index of international integration. It covers all MENA countries of study during 1998-2018 except Palestine. The normalized values of the index ranges from zero to

one; the closer the index is to one the more open the market is. Detecting the index values over time for the MENA region shows that countries such as Bahrain, Qatar, and the United Arab Emirates achieved complete openness since the seventies. Jordan and Oman have also been achieving a perfect score since 2001 and 2003 respectively. Other MENA countries have witnessed fluctuations such as Egypt, which achieved a complete score in 2008 but then its score decreased to reach 0.17 in 2016 which increase afterwards in 2017 and 2018 to be 0.42 out of 1. The Moroccan score also decreased from 0.42 in 1995 to 0.16 in 1996 and remained stable at this level until 2018. Furthermore, the Tunisian economy showed the same behavior as the Moroccan one. The Lebanese score decreased from 0.88 in 1998 to 0.45 in 2017 and 2018. Despite of not having a perfect score, the Turkish market worked on removing capital controls starting 2008 to reach a score of 0.45 out of 1 in 2017, but then it decreased to 0.16 out of 1 in 2018. It is worth noting that the Chinn-Ito KAOPEN index scores have not changed for all MENA countries between 2017 and 2018 except for Turkey.

Net foreign assets to GDP is the de factor indicator used by the study to measure the international integration of MENA countries. Figure 4 shows the relatively low levels of foreign assets for the majority of MENA countries and the decreasing trends during the last years.
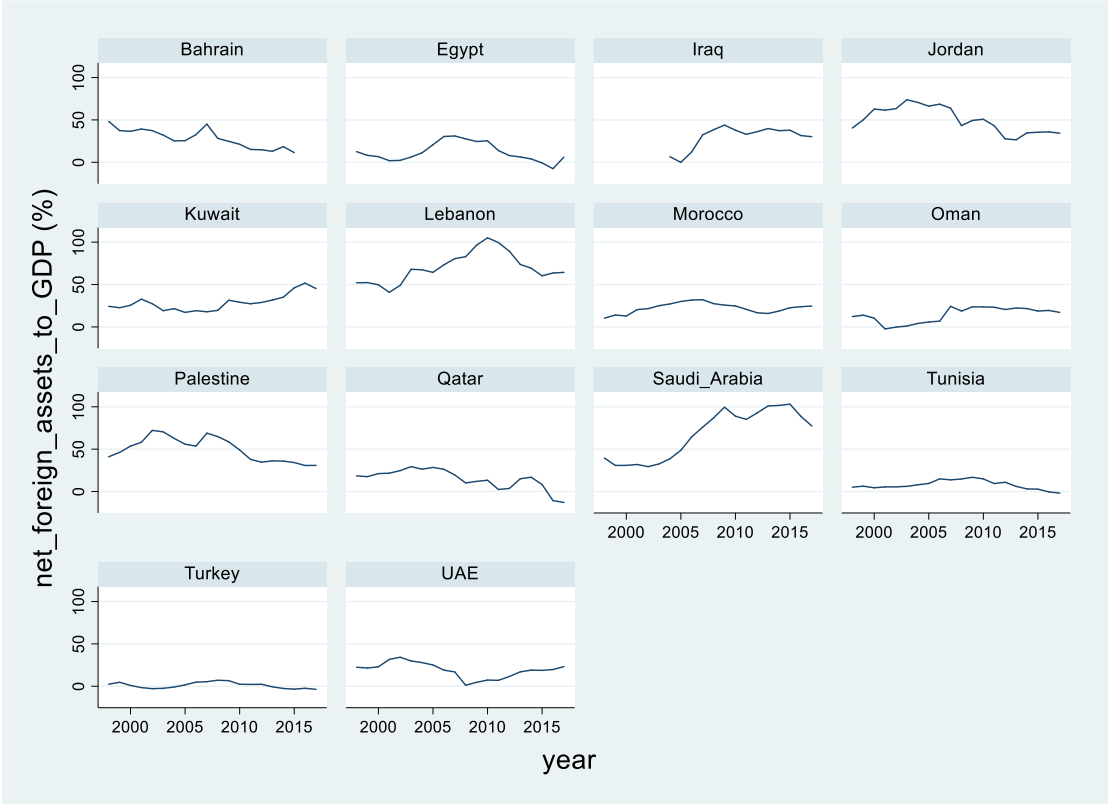
Figure 4: Net Foreign Assets to GDP, MENA Markets, (1998 - 2017)

Source: Calculated by the researcher using World Bank's data

The indicator used to assess financial inclusion bank deposits to GDP. This indicator was selected mainly for data availability reasons. Figure 5 shows some modest increases over time of the percentage of bank deposits to GDP in MENA countries.
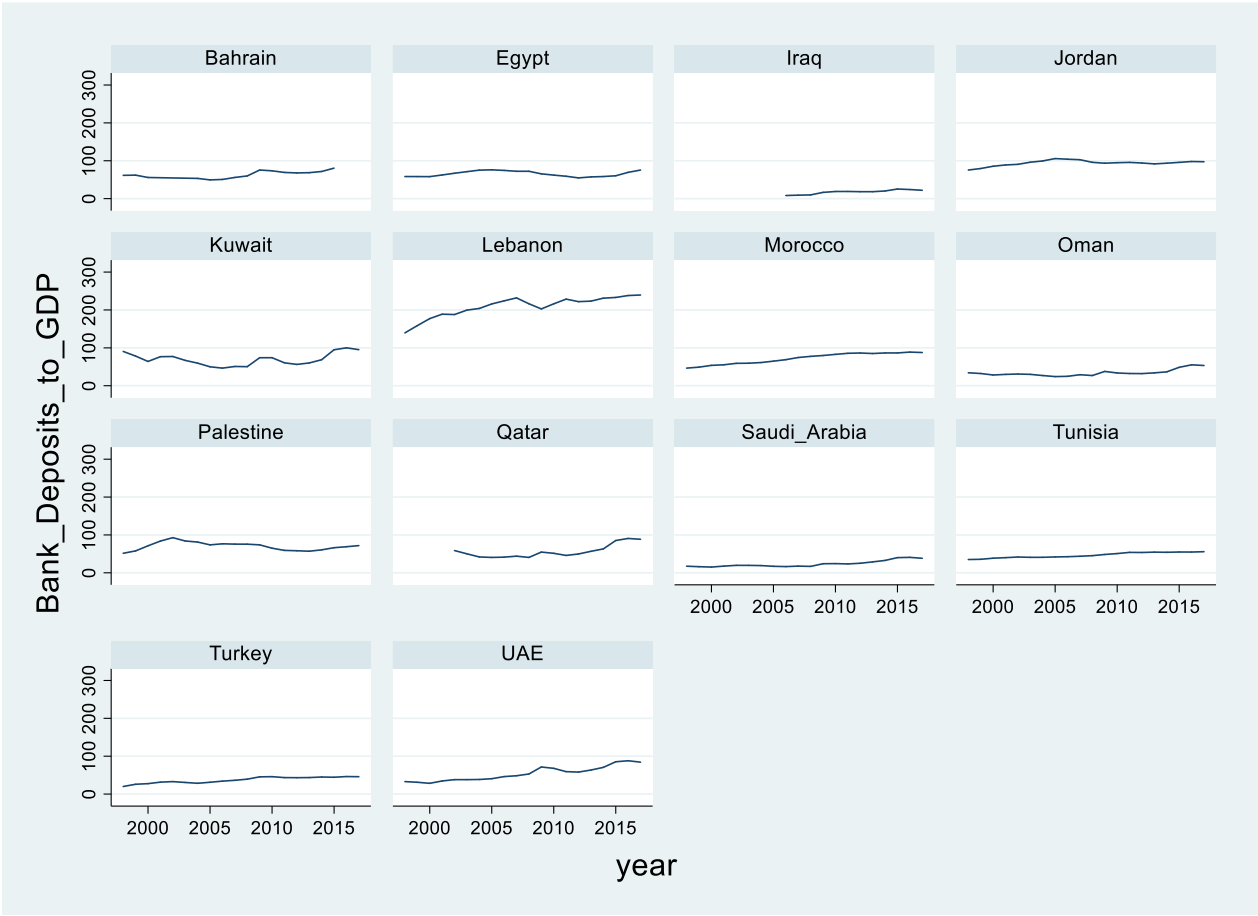
Figure 5: Bank Deposits to GDP, MENA Markets, (1998 - 2017)

Source: World Bank

Bank Z-score is used to measure financial inclusion in MENA. Higher Z-scores are indicative on more stable banking systems. In general, Figure 6 detects improvements in stability in MENA countries over time.
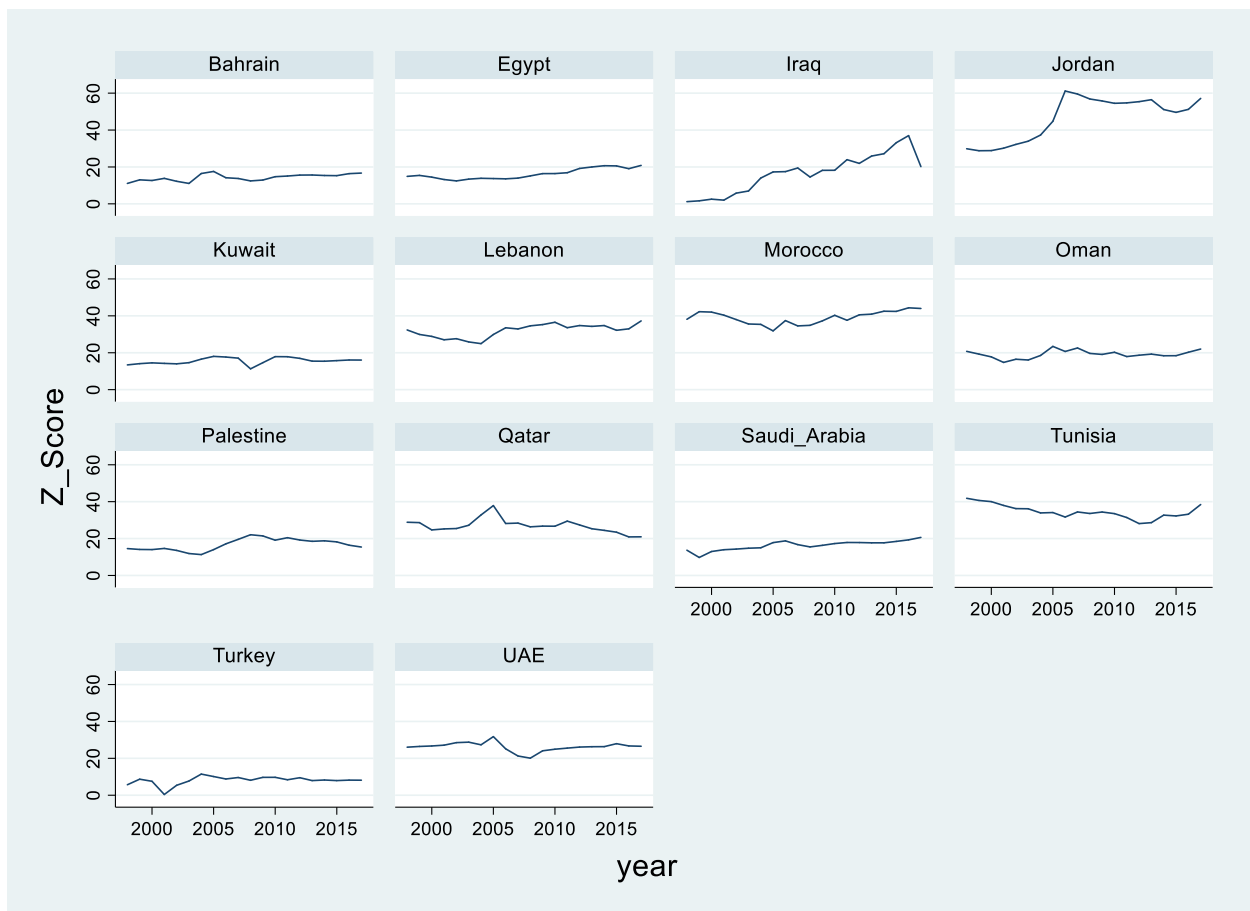
Figure 6: Bank Z-Score, MENA Markets, (1998 - 2017)

Source: World Bank

Model 1 in the appendix presents the results of the PVAR model that included among its endogenous variables: financial inclusion, financial stability, regional integration, the de facto measure of international financial integration, financial development, and governance (regulatory quality index), as well as the two exogenous dummy variables representing the Global Financial Crisis and the Arab Uprisings. The model shows that global or international integration negatively affects both inclusion and stability. International integration also leads to more regional integration. This could be justified by the fact that the ratio of foreign assets to GDP used to assess international integration includes also flows that come from the region as well. Furthermore, it appears from the results of the model that the Global Financial Crisis has led to higher levels of regional integration among MENA markets.

The impulse response functions, shown in Figure 7, illustrate the negative short-term impact of global integration on inclusion and stability. However, these negative impacts start to diminish on the longer run. On the other hand, global integration leads to a positive short-term effect on regional integration, but as time passes this effect turns into a negative one over the longer run.
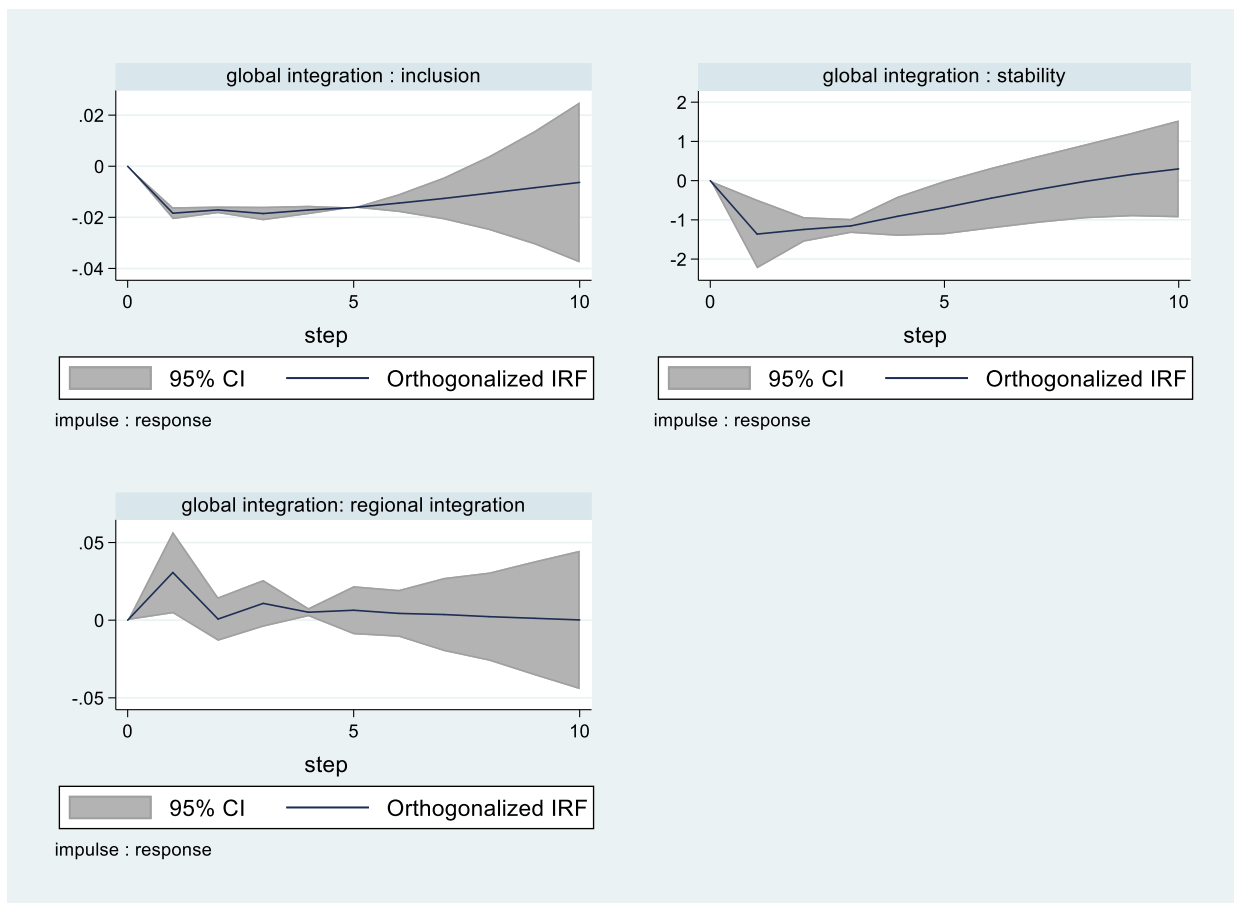
Figure 7: Impulse Response Functions, PVAR Model 1

Source: Constructed by the researcher based on Model 1 results

The study fits another PVAR model (Model 2 in the appendix) by replacing the de facto measure of international integration with the de jure Chinn-Ito KAOPEN index. Results presented in the appendix refer to the positive impacts of regional integration on financial inclusion in MENA. As for regional integration, results highlight the positive impacts of financial development and the role of crises (both the Global Financial Crisis and the Arab Uprisings) in motivating regional integration among countries in MENA. However, it is worth noting that the model showed negative impacts of governance, in terms of regulatory quality, on banking stability. The same results also applies on financial development. The study tried building the same model using other indicators of governance including political stability and the rule of law; however, no significant results were obtained.

The impulse response functions presented in Figure 8 showed that the short term negative impacts of governance on stability and financial development start to shrink over the long run. Moreover, the positive impacts of regional integration on inclusion decrease over time.
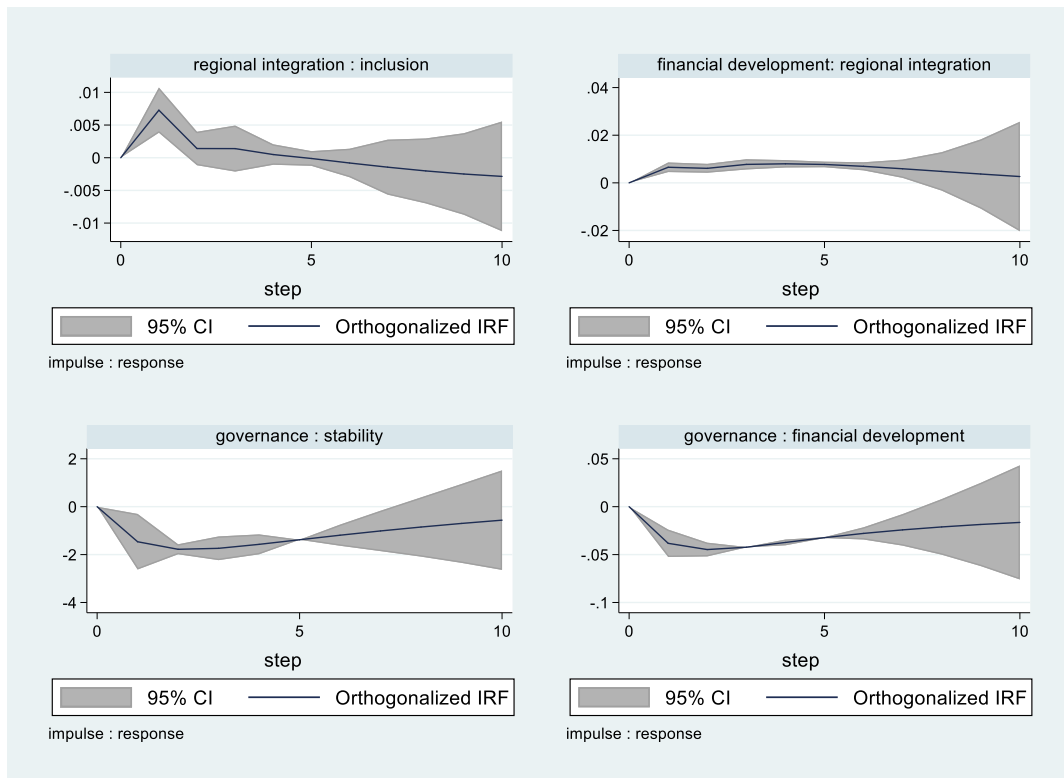
Figure 8: Impulse Response Functions, PVAR Model 2

Source: Constructed by the researcher based on Model 2 results

Finally, the study runs a PVAR model that incorporates both the de facto and de jure measures of international integration with other analyzed variables. Results of Model 3 presented in the appendix and the impulse response function shown in Figure 9 show the negative short term effect of de jure international integration on inclusion that reverses to positive over the longer run.
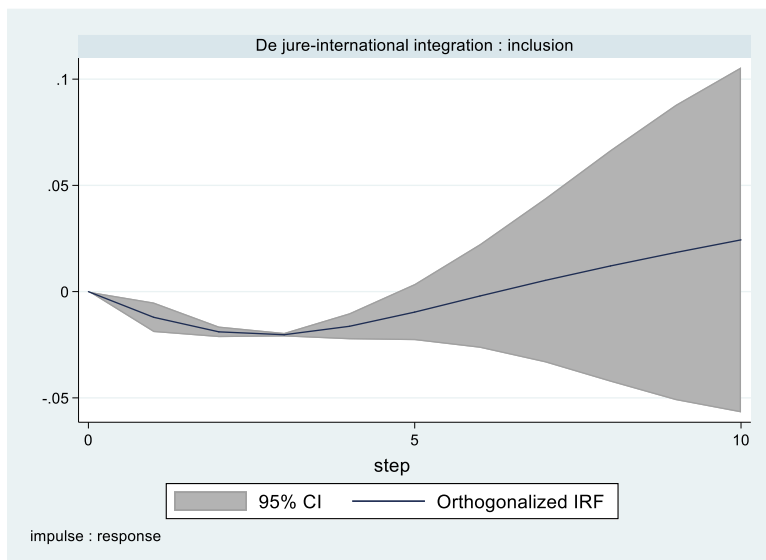
Figure 9: Impulse Response Function (Chinn-Ito de jure index and financial inclusion), PVAR Model 3

Source: Constructed by the researcher based on Model 3 results

Conclusion and Policy Implications

This study is an attempt to explore the interrelationships between financial integration, inclusion, and stability in the MENA region. It showed that regional integration is still limited in MENA, despite of growing linkages with other international markets. Regional integration in MENA is more pronounced among countries that lie within closer geographical proximities. Moreover, crises, whether being financial or political, also tend to increase regional correlations and linkages among MENA markets, although the impact of financial crises is higher compared to political instabilities. Analysis highlighted the positive short term impacts of regional integration on inclusion in the MENA region; however, these impacts could not be maintained for longer time periods. In contrast, international integration had negative effects on inclusion and stability that diminish over time. No linkages were found between financial inclusion and stability in the MENA region.

Limitations on data availability restricted the use of few indicators. Therefore, despite of being an essential aspect of financial inclusion, banking services are not the only formal financial services meant by financial inclusion. Future research should also try to explore testing other potential indicators for measuring financial integration. Additionally, constructing composite indices to measure financial integration, inclusion, and stability seems to be an area worth exploring more in future studies of financial markets in the developing countries including the MENA region. Finally, the same study could be applied on a bigger sample of developing countries for a further and deeper investigation of the topic.

To conclude, it can be argued that global integration cannot be avoided; however, regional integration might be part of the solution to mitigate the short term negativities of instability and crisis contagion from developed markets. Therefore, it is crucial to strike a balance between international and regional integration in MENA financial markets.

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Appendix

Stock Markets Indexes used in Analysis

Country	Index
Bahrain	Bahrain All Share Index (.BAX)
Egypt	EGX 30 Index (.EGX30)
Iraq	Iraq Stock Exchange Main 60 Index (.ISX60)
Jordan	Amman Stock Exchange All-Share Index (.AMMAN)
Kuwait	Boursa Kuwait All Share Index (.BKA)
Lebanon	Banque du Liban et d'Outre-Mer SAL (BLOM) Lebanese Stock Index (.BLSI)
Morocco	Casablanca SE All Share Index (.MASI)
Oman	Muscat SE General Index (.MSI)
Palestine	Palestine Exchange general index (.PLE)

Country	Index
Qatar	Qatar Exchange General Index (.QSI)
Saudi Arabia	Tadawul FF Index (.TASI)
Tunisia	Tunis All Shares Index (.TUNINDEX)
United Arab Emirates	Abu Dhabi Securities Exchange General (Main) Index (.ADI)
Turkey	BIST All shares Index (.XUTUM)
United Kingdom	FTSE 100 Index (.FTSE)
Germany	Deutsche Boerse DAX Index (.GDAXI)
Brazil	Sao Paulo SE Bovespa Index (.BVSP)
Russia	MOEX Russia Index (.IMOEX)
India	S&P BSE Sensex Index (.BSESN)
China	Shanghai Shenzhen CSI 300 Index (.CSI300)
South Africa	Johannesburg Stock Exchange All Share Index (.JALSH)
United States	S&P 500 Index (.SPX)

PVAR Models Results

Model 1:

```
-----------------------------------
                             (1)
                       inclusion
-----------------------------------
inclusion
L.inclusion              0.898***
                         (0.000)

L.stability             -0.00510
                         (0.487)

L.Reg-Integration        0.0731
```

```
                                  (0.377)

L.de facto                        -0.258*
                                  (0.081)

L.development                     -0.00473
                                  (0.917)

L.Regulatory Quality              -0.0146
                                  (0.929)

GFC Dummy                         0.00409
                                  (0.859)

Arab Uprisings Dummy              0.00321
                                  (0.915)
------------------------------------
stability
L.inclusion                       -3.120
                                  (0.785)

L.stability                       0.291
                                  (0.453)

L.Reg-Integration                 0.0837
                                  (0.985)

L.de facto                        -21.58*
                                  (0.061)

L.development                     5.315
                                  (0.103)

L.Regulatory Quality              0.596
                                  (0.956)

GFC Dummy                         1.828
                                  (0.262)

Arab Uprisings Dummy              1.571
                                  (0.401)
------------------------------------
Reg-Integration
L.inclusion                       0.163
                                  (0.485)

L.stability                       0.00521
                                  (0.613)

L.Reg-Integration                 -0.273**
                                  (0.033)

L.de facto                        0.447*
                                  (0.067)
```

```
L.development             -0.00173
                          (0.977)

L.Regulatory Quality        0.156
                          (0.482)

GFC Dummy                  0.166***
                          (0.000)

Arab Uprisings Dummy       0.0241
                          (0.586)
----------------------------------
de facto
L.inclusion               -0.424
                          (0.113)

L.stability               -0.00913
                          (0.396)

L.Reg-Integration          0.146
                          (0.333)

L.de facto                 0.470
                          (0.107)

L.development              0.0621
                          (0.375)

L.Regulatory Quality      -0.312
                          (0.202)

GFC Dummy                  0.00795
                          (0.838)

Arab Uprisings Dummy       0.0209
                          (0.662)
----------------------------------
development
L.inclusion               -0.519
                          (0.401)

L.stability               -0.0213
                          (0.232)

L.Reg-Integration          0.0225
                          (0.910)

L.de facto                -0.799
                          (0.106)

L.development              1.053***
                          (0.000)
```

```
L.Regulatory Quality          -0.218
                             (0.699)

GFC Dummy                    -0.0793
                             (0.298)

Arab Uprisings Dummy         -0.0212
                             (0.826)
------------------------------------
Regulatory Quality
L.inclusion                  -0.0717
                             (0.837)

L.stability                 0.000238
                             (0.985)

L.Reg-Integration             0.0643
                             (0.759)

L.de facto                     0.283
                             (0.471)

L.development                 0.0472
                             (0.627)

L.Regulatory Quality         0.902***
                             (0.010)

GFC Dummy                     0.0258
                             (0.639)

Arab Uprisings Dummy         0.00544
                             (0.933)
------------------------------------
Observations                     159
------------------------------------
p-values in parentheses
* p<0.10, ** p<0.05, *** p<0.01
```

Model 2:

```
------------------------------------
                                 (1)
                           inclusion
------------------------------------
inclusion
L.inclusion                  0.919***
                             (0.000)

L.stability                  -0.0103
                             (0.317)

L.Reg-Integration             0.161**
                             (0.041)
```

```
L.de jure                     -0.192
                             (0.120)

L.development                -0.0121
                             (0.691)

L.Regulatory Quality         -0.0288
                             (0.771)

GFC Dummy                   -0.00506
                             (0.828)

Arab Uprisings Dummy         0.0122
                             (0.701)
-----------------------------------
stability
L.inclusion                  -0.449
                             (0.941)

L.stability                   0.430
                             (0.280)

L.Reg-Integration             4.585
                             (0.310)

L.de jure                    -5.189
                             (0.416)

L.development                 1.477
                             (0.463)

L.Regulatory Quality        -15.56**
                             (0.022)

GFC Dummy                     0.985
                             (0.442)

Arab Uprisings Dummy          1.143
                             (0.469)
-----------------------------------
Reg-Integration
L.inclusion                  -0.144
                             (0.214)

L.stability              -0.000860
                             (0.915)

L.Reg-Integration          -0.306***
                             (0.001)

L.de jure                   -0.0450
                             (0.670)
```

```
L.development              0.0667**
                          (0.015)

L.Regulatory Quality        0.186
                          (0.163)

GFC Dummy                  0.205***
                          (0.000)

Arab Uprisings Dummy       0.0699**
                          (0.018)
-----------------------------------
de jure
L.inclusion              -0.0711
                          (0.690)

L.stability              -0.0160
                          (0.167)

L.Reg-Integration          0.0484
                          (0.718)

L.de jure                  0.675***
                          (0.001)

L.development            -0.0140
                          (0.771)

L.Regulatory Quality       -0.232
                          (0.165)

GFC Dummy                  0.0342
                          (0.349)

Arab Uprisings Dummy      0.00556
                          (0.901)
-----------------------------------
development
L.inclusion               -0.114
                          (0.638)

L.stability              -0.0146
                          (0.311)

L.Reg-Integration          0.128
                          (0.429)

L.de jure                -0.0436
                          (0.850)

L.development              0.941***
                          (0.000)

L.Regulatory Quality       -0.407*
```

```
                                (0.067)

GFC Dummy                      -0.144***
                                (0.005)

Arab Uprisings Dummy           -0.0800
                                (0.146)
-----------------------------------
Regulatory Quality
L.inclusion                    -0.149
                                (0.555)

L.stability                 -0.0000669
                                (0.996)

L.Reg-Integration              -0.125
                                (0.362)

L.de jure                       0.205
                                (0.265)

L.development                  0.0786
                                (0.190)

L.Regulatory Quality          0.880***
                                (0.000)

GFC Dummy                      0.0186
                                (0.647)

Arab Uprisings Dummy           0.0114
                                (0.841)
-----------------------------------
Observations                    145
-----------------------------------
p-values in parentheses
* p<0.10, ** p<0.05, *** p<0.01
```

Model 3:

```
-----------------------------------
                                 (1)
                              inclusion
-----------------------------------
inclusion
L.inclusion                   0.954***
                                (0.000)

L.stability                  -0.00877
                                (0.180)

L.Reg-Integration             0.161**
                                (0.043)
```

```
L.de facto                      0.0692
                               (0.807)

L.de jure                      -0.170*
                               (0.064)

L.development                  -0.0278
                               (0.655)

L.Regulatory Quality           -0.0553
                               (0.696)

GFC Dummy                      -0.00918
                               (0.575)

Arab Uprisings Dummy            0.00543
                               (0.819)
-----------------------------------
stability
L.inclusion                     3.031
                               (0.650)

L.stability                     0.577*
                               (0.053)

L.Reg-Integration               4.584
                               (0.287)

L.de facto                      6.741
                               (0.583)

L.de jure                      -3.036
                               (0.590)

L.development                  -0.0520
                               (0.987)

L.Regulatory Quality           -18.14**
                               (0.024)

GFC Dummy                       0.584
                               (0.618)

Arab Uprisings Dummy            0.481
                               (0.732)
-----------------------------------
Reg-Integration
L.inclusion                     0.0349
                               (0.824)

L.stability                     0.00669
                               (0.372)
```

```
L.Reg-Integration              -0.306***
                                (0.007)

L.de facto                       0.346
                                (0.331)

L.de jure                        0.0657
                                (0.506)

L.development                   -0.0118
                                (0.892)

L.Regulatory Quality             0.0534
                                (0.776)

GFC Dummy                        0.184***
                                (0.000)

Arab Uprisings Dummy             0.0359
                                (0.296)
----------------------------------
de facto
L.inclusion                     -0.333
                                (0.179)

L.stability                     -0.0172
                                (0.107)

L.Reg-Integration                0.187
                                (0.186)

L.de facto                       0.328
                                (0.536)

L.de jure                       -0.137
                                (0.331)

L.development                    0.130
                                (0.347)

L.Regulatory Quality             0.0243
                                (0.923)

GFC Dummy                       0.000695
                                (0.985)

Arab Uprisings Dummy             0.0193
                                (0.690)
----------------------------------
de jure
L.inclusion                      0.0280
                                (0.872)

L.stability                     -0.0118
```

```
                                (0.151)

L.Reg-Integration                0.0484
                                (0.689)

L.de facto                        0.192
                                (0.573)

L.de jure                       0.736***
                                (0.000)

L.development                   -0.0575
                                (0.499)

L.Regulatory Quality             -0.305
                                (0.114)

GFC Dummy                        0.0228
                                (0.447)

Arab Uprisings Dummy            -0.0133
                                (0.708)
-----------------------------------
development
L.inclusion                      -0.277
                                (0.451)

L.stability                     -0.0215
                                (0.140)

L.Reg-Integration                 0.128
                                (0.479)

L.de facto                       -0.316
                                (0.671)

L.de jure                        -0.145
                                (0.550)

L.development                    1.013***
                                (0.000)

L.Regulatory Quality             -0.285
                                (0.405)

GFC Dummy                       -0.126**
                                (0.037)

Arab Uprisings Dummy            -0.0489
                                (0.494)
-----------------------------------
Regulatory Quality
L.inclusion                      -0.154
                                (0.548)
```

```
L.stability                    -0.000285
                                (0.976)

L.Reg-Integration               -0.125
                                (0.364)

L.de facto                     -0.00999
                                (0.983)

L.de jure                        0.201
                                (0.222)

L.development                   0.0809
                                (0.469)

L.Regulatory Quality           0.884***
                                (0.002)

GFC Dummy                       0.0192
                                (0.616)

Arab Uprisings Dummy            0.0124
                                (0.817)
----------------------------------
Observations                     145
----------------------------------
p-values in parentheses
* p<0.10, ** p<0.05, *** p<0.01
```